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☐	L10	poly$methacrylic$$$$$ethylacrylate	0
☐	L9	poly$methacrylic$ethylacrylate	0
☐	L8	poly$ethylacryl$ same lipid	38
☐	L7	poly$ethylacryl$same lipid	72829
☐	L6	poly$ethylacrylic same lipid	2
☐	L5	poly$ethylacrylic and liposome	12
☐	L4	poly$ethylacrylic same (ph adj1 sensitive)	2
☐	L3	poly$ethylacrylic same liposome	2
☐	L2	poly$ethylacrylic	131
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L5: Entry 3 of 12 File: USPT Jul 6, 2004

DOCUMENT-IDENTIFIER: US 6759431 B2
TITLE: Compositions and methods for treating or preventing diseases of body passageways

Detailed Description Text (39):
As noted above, therapeutic compositions of the present invention may additionally comprise a polymeric carrier. A wide variety of polymeric carriers may be utilized to contain and or delivery one or more of the therapeutic agents discussed above, including for example both biodegradable and non-biodegradable compositions. Representative examples of biodegradable compositions include albumin, collagen, gelatin, starch, cellulose (methylcellulose, hydroxypropylcellulose, hydroxypropylmethylcellulose, carboxymethylcellulose, cellulose acetate phthalate, cellulose acetate succinate, hydroxypropylmethylcellulose phthalate), casein, dextrans, polysaccharides, fibrinogen, poly(D,L lactide), poly(D,L-lactide-co-glycolide), poly(glycolide), poly(hydroxybutyrate), poly(alkylcarbonate) and poly (orthoesters), polyesters, poly(hydroxyvaleric acid), polydioxanone, poly(ethylene terephthalate), poly(malic acid), poly(tartronic acid), polyanhydrides, polyphosphazenes, poly(amino acids and their copolymers (see generally Illum, L., Davids, S. S. (eds.) "Polymers in controlled Drug Delivery" Wright, Bristol, 1987; Arshady, J. Controlled Release 17:1-22, 1991; Pitt, Int. J. Phar. 59:173-196, 1990; Holland et al., J. Controlled Release 4:155-0180, 1986). Representative examples of nondegradable polymers include EVA copolymers, silicone rubber, acrylic polymers (polyacrylic acid, polymethylacrylic acid, polymethylmethacrylate, polyalkylcynoacrylate), polyethylene, polyproplene, polyamides (nylon 6,6), polyurathane, poly(ester urathanes), poly(ether urathanes), poly(ester-urea), polyethers (poly(ethylene oxide), poly(propylene oxide), pluronics, poly (tetramethylene glycol))xxx,silicone rubbers and vinyl polymers [polyvinylpyrrolidone, poly(vinyl alcohol, poly(vinyl acetate phthalate. Polymers may also be developed which are either anionic (e.g., alginate, carrageenin, caboxymethyl cellulose and poly(acrylic acid), or cationic (e.g., Chitosan, poly-1-lysine, polyethylenimine, and poly (allyl amine)) (see generally, Dunn et al., J. Applied Polymer Sci. 50:353-365, 1993; Cascone et al., J. Materials Sci.: Materials in Medicine 5:770-774, 1994; Shiraishi et al., Biol. Pharm. Bull. 16(11):1164-1168, 1993; Thacharodi and Rao, Int'l J. Pharm. 120:115-118, 1995; Miyazaki et al., Int'l J. Pharm. 118:257-263, 1995). Particularly preferred polymeric carriers include poly(ethylene-vinyl acetate) (40% cross-linked), poly (D,L-lactic acid) oligomers and polymers, poly (L-lactic acid) oligomers and polymers, poly (glycolic acid), copolymers of lactic acid and glycolic acid, poly (caprolactone), poly (valerolactone), polyanhydrides, copolymers of poly (caprolactone) or poly (lactic acid) with polyethylene glycol and blends thereof.

Detailed Description Text (54):
Other carriers that may likewise be utilized to contain and deliver the therapeutic agents described herein include: hydroxypropyl .beta. cyclodextrin (Cserhati and Hollo, Int. J. Pharm. 108:69-75, 1994), liposomes (see e.g., Sharma et al., Cancer Res. 53:5877-5881, 1993; Sharma and Straubinger, Pharm. Res. 11(60):889-896, 1994; WO 93/18751; U.S. Pat. No. 5,242,073), liposome/gel (WO 94/26254), nanocapsules (Bartoli et al., J. Microencapsulation 7(2):191-197, 1990), micelles (Alkan-Onyuksel et al., Pharm. Res. 11(2):206-212, 1994), implants (Jampel et al., Invest. Ophthalm. Vis. Science 34(11):3076-3083, 1993; Walter et al., Cancer Res. 54:22017-

2212, 1994) nanoparticles(Violante and Lanzafame PAACR), nanoparticles--modified (U.S. Pat. No. 5,145,684), nanoparticles (surface modified) (U.S. Pat. No. 5,399,363), taxol emulsion/solution (U.S. Pat. No. 5,407,683), micelle (surfactant) (U.S. Pat. No. 5,403,858), synthetic phospholipid compounds (U.S. Pat. No. 4,534,899), gas borne dispersion (U.S. Pat. No. 5,301,664), liquid emulsions, foam spray, gel lotion cream, ointment, dispersed vesicles, particles or droplets solid- or liquid-aerosols, microemulsions (U.S. Pat. No. 5,330,756), polymeric shell (nano- and micro-capsule) (U.S. Pat. No. 5,439,686), taxoid-based compositions in a surface-active agent (U.S. Pat. No. 5,438,072), emulsion (Tarr et al., Pharm Res. 4: 62-165, 1987), nanospheres (Hagan et al., Proc. Intern. Symp. Control Rel. Bioact. Mater. 22, 1995; Kwon et al., Pharm Res. 12(2):192-195; Kwon et al., Pharm Res. 10(7):970-974; Yokoyama et al., J. Contr. Rel. 32:269-77, 1994; Gref et al., Science 263:1600-1603, 1994; Bazile et al., J. Pharm. Sci. 84:493-498, 1994) and implants (U.S. Pat. No. 4,882,168).

Other Reference Publication (54):
Sharma and Straubinger, "Novel Taxol Formulations: Preparation and Characterization of Taxol-Containing Liposomes," Pharmaceutical Research 11(6):889-896, 1994.

Other Reference Publication (55):
Sharma et al., "Antitumor Effect of Taxol-containing Liposomes in a Taxol-resistant Murine Tumor Model," Cancer Research 53:5877-5881, 1993.

Other Reference Publication (56):
Sharma et al., "Antitumor Efficacy of Taxane Liposomes on a Human Ovarian Tumor Xenograft in Nude Athymic Mice," Journal of Pharmaceutical Sciences 84(12):1400-1404, 1995.

Other Reference Publication (173):
Kono et al., "Temperature-sensitive liposomes: liposomes bearing poly (N-isopropylacrylamide)," Journal of Controlled Release 30: 69-75, 1994.

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L8: Entry 17 of 38 File: USPT Nov 13, 2001

DOCUMENT-IDENTIFIER: US 6316024 B1
TITLE: Therapeutic liposome composition and method of preparation

Detailed Description Text (33):
Hydrophilic polymers suitable for derivatization with a vesicle-forming lipid include polyvinylpyrrolidone, polyvinylmethylether, polymethyloxazoline, polyethyloxazoline, polyhydroxypropyloxazoline, polyhydroxypropylmethacrylamide, polymethacrylamide, polydimethylacrylamide, polyhydroxypropylmethacrylate, polyhydroxyethylacrylate, hydroxymethylcellulose, hydroxyethylcellulose, polyethyleneglycol, polyaspartamide and hydrophilic peptide sequences. The polymers may be employed as homopolymers or as block or random copolymers.

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L8: Entry 32 of 38 File: USPT May 20, 1997

US-PAT-NO: 5631018
DOCUMENT-IDENTIFIER: US 5631018 A

TITLE: Lipid-polymer conjugates and liposomes

DATE-ISSUED: May 20, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Zalipsky; Samuel	Fremont	CA		
Woodle; Martin C.	Menlo Park	CA		
Lasic; Danilo D.	Newark	CA		
Martin; Francis J.	San Francisco	CA		

US-CL-CURRENT: 424/450; 264/4.3, 264/4.33, 428/402.2

CLAIMS:

It is claimed:

1. A liposomal composition containing liposomes having sizes between 0.05-0.5 microns, and comprised of vesicle-forming lipids and between 1-30 mole percent of a lipid-polymer conjugate consisting of

a lipid polymer conjugate consisting of a lipid having two hydrocarbon chains as hydrophobic moieties and a polar head group, and

covalently attached to said polar head group is a homopolymer or copolymer polymer chain having one end at which the polymer chain is attached to said polar head group and an opposite free end, said polymer chain containing a polymer selected from the group consisting of polyvinylpyrrolidone, polyvinylmethylether, polyhydroxypropyl methacrylate, polyhydroxyethyl metacrylate, polyhydroxyethyl acrylate, polymethacrylamide, poly-dimethylacrylamide. polymethyloxazoline, polyethyloxazoloine, polyhydroxyproploxazoline, and polyaspartamide.

2. The conjugate of claim 1, wherein the polymer chain is a homopolymer selected from the group consisting of polyvinylpyrrolidone, polyvinylmethylether, polyhydroxypropyl methacrylamide, polyhydroxypropyl methacrylate, polyhydroxyethyl acrylate, polymethacrylamide, polydimethylacrylamide, polymethyloxazoline, polyethyloxazoline, polyhydroxyethyloxazoline, polyhydroxypropyloxazoline, and polyaspartamide.

3. The conjugate of claim 1, wherein the polymer chain is a block or random copolymer containing one or more blocks of a first polymer spaced by blocks or single subunits of a second polymer, said polymers selected from the group consisting of polyvinylpyrrolidone,polyvinylmethylether, polyhydroxypropyl

methacrylate, polyhydroxyethyl acrylate, polymethacrylamide,and polydimethylacrylamide.

4. The conjugate of claim 1, wherein the polymer chain is a block or random of copolymers containing one or more blocks of a first polymer spaced by blocks or single subunits of a second polymer, said polymers selected from the group consisting of polymethyloxazoline, polyethyloxazoline, polyhydroxyethyloxazoline, and polyhydroxypropyloxazoline.

5. The conjugate of claim 1, wherein the polymer chain is a block copolymer containing one or more blocks of polyethylene glycol spaced by blocks or single subunits of a second polymer selected from the group consisting of polyvinylpyrrolidone, polyvinylmethylether, polymethacrylamide, polydimethylacrylamide, polymethyloxazoline, and polyethyloxazoline.

6. The conjugate of claim 1, wherein the polymer is a homopolymer of polyvinylpyrrolidone.

7. The conjugate of claim 1, wherein the polymer is a homopolymer selected from the group consisting of polymethyloxazoline and polyethyloxazoline.

8. The conjugate of claim 1, wherein the polymer chain has degree of polymerization between about 20 to 150.

9. The conjugate of claim 1, wherein the vesicle-forming lipid is a phospholipid.

10. The conjugate of claim 9, wherein the vesicle-forming lipid is phosphatidylethanolamine.

11. A method of preparing liposomes characterized by an extended blood circulation time, comprising

adding to vesicle-forming lipids, between 1-30 mole percent of a lipid-polymer conjugate consisting of a lipid polymer conjugate consisting of a lipid having two hydrocarbon chains as hydrophobic moieties and a polar head group, and covalently attached to said polar head group, is a homopolymer or copolymer chain having one end at which the polymer chain is attached to said polar head group and an opposite free end, said polymer chain containing a polymer selected from the group consisting of polyvinylpyrrolidone, polyvinylmethylether, polyhydroxypropyl methacrylamide, polyhydroxypropyl methacrylamide, polyhydroxyethyl acrylate, polymethacrylamide, polydimethylacrylamide, polymethyloxazoline, polymethyloxazoline, polyethyloxazoline, polyhydroxypropyloxazoline, and polyaspartamide,

forming liposomes containing said vesicle-forming lipids and said lipid-polymer conjugate, and containing a pharmaceutical compound in entrapped form, and

sizing the liposomes to a selected size in the size range between about 0.05 to 0.5 microns,

where the added conjugate is effective to extend the circulation time of the liposomes when compared to liposomes prepared in the absence of said conjugate.

12. The method of claim 11, wherein the added lipid-polymer conjugate is

effective to reduce the electrophoretic mobility of the liposomes with respect to the same liposomes in which phosphatidylglycerol is substituted for said lipid polymer conjugate.

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L12: Entry 41 of 42 File: USPT May 15, 1984

DOCUMENT-IDENTIFIER: US 4448765 A
TITLE: Liposomes and their use in treating human or other mammalian patients

Brief Summary Text (6):
Polymers of use in stabilising liposomes may be based upon a wide variety of polymer types since the nature of the polymer backbone is not of primary importance in determining the stabilising effect of the polymer, this effect being due rather to the presence in the polymer of lipophilic groups of the type indicated. Types of polymer which may be used include those having an organic backbone, for example polyvinyl alcohol derived polymers, polyacrylic and polymethacrylic acid derived polymers, and other polyvinyl, polyisobutylene and polyisoprene polymers, all of which contain a backbone consisting of carbon atoms, as well as polymers containing a backbone which includes hetero atoms such as oxygen or nitrogen together with the carbon atoms. Also of some interest are polymers having an inorganic backbone, for example the polyphosphazene polymers. The polymers may be copolymers derived from two or more different type of monomer; in which case it is not usually necessary for the parts of the backbone derived from each of the monomers to carry a lipophilic group, although this may be the case if desired. However, it is generally preferred, that the lipophilic groups make up a significant part, for example 50 or 60% or more, of the molecular weight of the polymer and conveniently also that when both hydrophilic and lipophilic groups are attached to the polymer backbone then the latter predominate.

CLAIMS:

9. Liposomes according to claim 1, wherein the polymer is a derivative of polyvinyl alcohol, polyacrylic acid or polymethacrylic acid.

L12: Entry 41 of 42 File: USPT May 15, 1984

US-PAT-NO: 4448765
DOCUMENT-IDENTIFIER: US 4448765 A

TITLE: Liposomes and their use in treating human or other mammalian patients

DATE-ISSUED: May 15, 1984

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ash; Philip S.	Colchester			GB2
Hider; Robert C.	St. Osyth			GB2

US-CL-CURRENT: 424/450; 264/4.7, 424/1.21, 424/209.1, 424/210.1, 424/812, 424/94.3, 428/402.22, 436/829, 514/179, 514/3

CLAIMS:

We claim:

1. Liposomes incorporating a polymer having aliphatic lipophilic groups with a chain of at least six atoms attached to the backbone thereof and having a molecular weight of from 2,000 to 50,000 wherein the proportion of polymer to the lipid content of the liposomes is in a range from 1 part by weight of the polymer to from 10 to 1,000 parts by weight of the lipid.

2. Liposomes according to claim 1, wherein the lipophilic groups have a chain of at least twelve atoms.

3. Liposomes according to claim 1, wherein the lipophilic groups have a chain of up to and including thirty atoms.

4. Liposomes according to claim 1 wherein the lipophilic groups comprise a chain of carbon atoms and the residue of a functional grouping through which this is attached to the polymer backbone.

5. Liposomes according to claim 4, wherein the chain of carbon atoms is the residue of a straight chain hydrocarbon.

6. Liposomes according to claim 5, wherein the chain of carbon atoms is a n-tridecyl, n-tetradecyl, n-pentadecyl, n-hexadecyl, n-heptadecyl, n-octadecyl, oleyl, or n-nonadecyl group.

7. Liposomes according to claim 4 wherein the functional residue is an oxycarbonyl group.

8. Liposomes according to claim 1, wherein the polymer backbone comprises a chain of carbon atoms.

9. Liposomes according to claim 1, wherein the polymer is a derivative of polyvinyl alcohol, polyacrylic acid or polymethacrylic acid.

10. Liposomes according to claim 9, wherein the polymer is an ester derivative, being a polyvinyl alcohol ester, a polyacrylate or a polymethacrylate.

11. Liposomes according to claim 10, wherein the polymer is n-tetradecyl-polyacrylate or polymethacrylate, n-hexadecyl- polyacrylate or polymethacrylate, n-octadecyl- polyacrylate or polymethacrylate, polyvinyl myristate, polyvinyl palmitate, or polyvinyl stearate.

12. Liposomes according to claim 1, wherein the proportion of polymer to the lipid content of the microvesicles is in a range from 1 part by weight of the polymer to from 20 to 200 parts by weight of the lipid.

13. Liposomes according to claim 1, wherein the lipid content of the liposomes is substantially comprised of lipids having aliphatic chains of from fourteen to eighteen carbon atoms.

14. Liposomes according to claim 1, wherein the polymer has a molecular weight of from 5,000 to 40,000.

15. A composition comprising liposomes according to claim 1 incorporating a physiologically active substance.

16. A composition according to claim 15, wherein the physiologically active substance is an antigenic material.

17. A composition according to claim 15, wherein the physiologically active substance is an anti-inflammatory agent.

18. A composition according to claim 15, wherein the physiologically active substance is a hormone.

19. A composition according to claim 15, wherein the liposomes carry a neutral or negative surface charge.

20. A method for the treatment of a human or other mammalian patient with a physiologically active substance which comprises administering said substance to the patient incorporated with liposomes according to claim 1.

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L12: Entry 42 of 42 File: DWPI Nov 6, 1985

DERWENT-ACC-NO: 1985-277826
DERWENT-WEEK: 198545

TITLE: Liposome compsn. entrapped in crosslinked matrix - for slow release of drugs, etc.

Basic Abstract Text (1):
Liposome compsn. comprises a 3-dimensional crosslinked matrix (I) physically trapping a liposome enclosing a material (II) to be admin. Pref. (I) is hydrophilic and is polyacrylamide, poly(2-hydroxyethyl methacrylate), polymethacrylic acid, poly(N,N-dimethylaminoethyl methacrylate), polyethylene oxide, PVA, gelatin, PVP, polysaccharide, Na alginate, collagen, fibrin, silicone, collodion, or derivs. of these.

Equivalent Abstract Text (1):
Liposome compsn. comprises a 3-dimensional crosslinked matrix (I) physically trapping a liposome enclosing a material (II) to be admin. Pref. (I) is hydrophilic and is polyacrylamide, poly(2-hydroxyethyl methacrylate), polymethacrylic acid, poly(N,N-dimethylaminoethyl methacrylate), polyethylene oxide, PVA, gelatin, PVP, polysaccharide, Na alginate, collagen, fibrin, silicone, collodion, or derivs. of these.

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